

DETAILED ACTION

Allowable Subject Matter

1. The following is an examiner's statement of reasons for allowance per MPEP 1302.
2. Claims 7-11,13 are deemed to be directed to a non-obvious Improvement over Nguyen et al (5513672) and Nirasawa et al (Wo03040599 with equivalent US patent 7146998).
3. Claim 7 is drawn to a flow control valve comprising a piston, an inlet and outflow channel. The piston has an axial inflow orifice ,a plurality of radial, lateral orifices and a circumferentially outflow groove disposed between a first collar and a second collar that forms a control edge. The axial inflow orifice extends cylindrically at least to a beginning of the radial lateral outflow orifices and the circumferential outflow groove expands in terms of a radial depth on an outer circumference of the piston towards the control edge.

Nguyen et al disclose substantially most of the claimed structure of the flow control valve except a circumferential outflow groove of the piston expanding in terms of a radial depth towards the control edge.

Although Nirasawa et al teach a similar valve with the piston having outflow groove expanding in terms of a radial depth towards the control edge, In the examiner's opinion, it would not have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the control valve of Nguyen et al by Nirasawa et al since fluid flow into and out of annular space 30 of Nguyen et al.'s valve is very different

and from different directions than the fluid does in the passage 46 of Nirasawa et al.
The modification would require extensive redesigning.

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amene S. Bayou whose telephone number is 571-270-3214. The examiner can normally be reached on Monday-Thursday, 8:00 am-5:00 pm.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on (571)272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

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USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devon C Kramer/
Supervisory Patent Examiner, Art
Unit 3746

/Amene S Bayou/

Examiner, Art Unit 3746